

History of CSO Planning

Planning for CSO control is a dynamic process that must respond to changing regulations and conditions. The first CSO control plan was completed in 1979 to address CSOs into Lake Washington. The most recent CSO control plan covers all CSOs in the County system. This latest plan was included as a part of the 1999 Regional Wastewater Services Plan (RWSP), which amended King County’s comprehensive sewer plan.

This chapter presents a history of CSO planning in the County both before and after adoption of the RWSP. It also describes plan updates and reviews scheduled for the near future. Figure 2-1 graphically represents this progression.

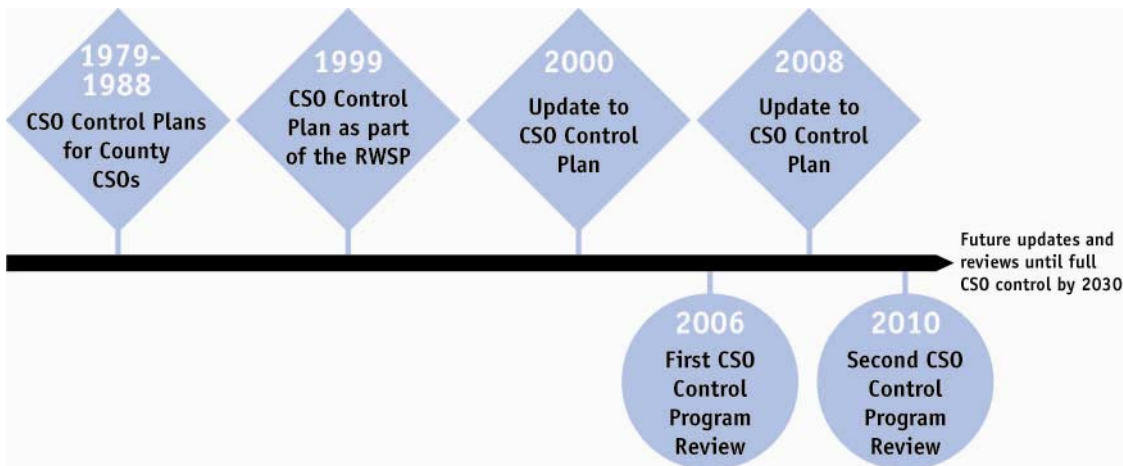


Figure 2-1. Past and Future CSO Control Planning

2.1 CSO Planning Prior to the RWSP

In response to the Clean Water Act of 1972, Metro adopted its first *Combined Sewer Overflow Control Program* in 1979. Before projects in the program were fully implemented, Metro decided to incorporate CSO planning into a larger system-wide planning effort that was launched to meet new secondary treatment regulations for wastewater treatment plants.

In 1985, Metro published the *Plan for Combined Sewer Overflow Control*. Concurrent with this planning, the State of Washington amended the Water Pollution Control Act (RCW 90.48) to require all municipalities with CSOs to develop plans for “the greatest reasonable reduction at the earliest possible date.”

In 1986, in response to RCW 90.48, Metro issued the *Supplemental Plan for Combined Sewer Overflow Control*. The supplemental plan evaluated CSO control projects that would achieve 75 and 90 percent volume reductions and documented the results of upgraded computer modeling of the system.

In 1987, Ecology published a new CSO regulation. It defined the “greatest reasonable reduction” in CSOs (RCW 90.48) as “control of each CSO in such a way that an average of one untreated discharge may occur per year” (WAC 173-245-020). The CSO regulation required each community to submit a CSO plan by 1988 that would specify the means of complying with the new CSO control standard and then to update the plan at the time of NPDES permit renewals, intended to occur at least every 5 years.

Metro worked with Ecology to develop a revised CSO plan—the *1988 Combined Sewer Overflow Control Plan*. The plan established an interim goal of achieving a 75 percent CSO volume reduction system wide by the end of 2005 and described additional projects intended to achieve the ultimate goal of an average of no more than one untreated event per year for each CSO.

As part of the 1995 NPDES permit renewal for the West Point Treatment Plant, King County prepared an update and amendment to the 1988 plan. The *1995 CSO Control Update* assessed the effectiveness of CSO reduction efforts to date, reevaluated priorities for control of CSO sites, and identified work to be completed on three control projects in 1995–2000: Denny Way/Lake Union, Henderson Street/Martin Luther King, Jr., and Harbor CSO projects.

A History of CSO Plans

1979—Metro adopted its first *Combined Sewer Overflow Control Program*.

1985 and 1986—The *Plan for Combined Sewer Overflow Control* and the *Supplemental Plan for Combined Sewer Overflow Control* were prepared as part of a system-wide planning effort

1988—The *1988 Combined Sewer Overflow Control Plan* was prepared in response to Ecology’s 1987 definition of control as one untreated discharge per year.

1995—As part of the 1995 West Point NPDES permit renewal, King County prepared an update and amendment to the 1988 plan.

1999—A CSO control plan was adopted as part of the RWSP. The plan lists 21 control projects to bring all CSOs into control by 2030.

2000—The RWSP CSO control plan was updated as part of the West Point NPDES permit renewal. No changes to the RWSP CSO control plan were recommended.

2.2 CSO Planning in the RWSP

The RWSP integrates long-range planning in all areas of wastewater services—treatment and conveyance, biosolids reuse, CSO control, and water reuse. The RWSP outlines wastewater projects to be built between 2000 and 2030 to protect human health and the environment, serve population growth, and meet regulatory requirements. As noted previously, the RWSP includes King County’s CSO control plan. The plan lists 21 CSO control projects to reduce CSOs to one untreated event per year on average at each CSO location.

Several assumptions guided the development of the CSO plan in the RWSP. These assumptions included conditions around which plans must be developed, such as population and the average amount of rainfall in a year, and values and practices, such as protecting human health and the

environment. These assumptions, as well as changes to them since the RWSP was adopted in 1999, are listed in Appendix A.

Also in the RWSP are nine CSO control policies approved by the King County Council in 1999. These policies are intended to guide the Wastewater Treatment Division (WTD) in controlling CSO discharges and in prioritizing planned CSO projects. These policies institutionalized several values and practices, provided guiding principles, and called for specific tasks to be done. These policies and the status of their implementation are listed in Appendix A.

The CSO control projects were prioritized according to the CSO policies. The CSO projects given the highest priority were projects near bathing beaches with recreational uses such as swimming where high direct contact with the water occurs (Figure 2-2 and Table 2-1). Thus, projects at CSOs that discharge near beaches on Puget Sound are scheduled for completion next. The priorities, as shown in Figure 2-2, are as follows:

- **Priority 1, CSOs near Puget Sound Beaches.** The current schedule calls for completion of the Barton, Murray, North Beach, and South Magnolia projects is 2012.
- **Priority 2, The University/Montlake CSO.** This CSO is located at the east end of the Ship Canal. The control project was given a high priority because of the high level of boating in that area, which could result in secondary contact with the water.
- **Priority 3, CSOs Along the Duwamish River and in Elliot Bay.** The RWSP designated that nine projects at CSOs along the Duwamish River and in Elliott Bay be completed by 2027. These projects were given third priority because the 1998 *Combined Sewer Overflow Water Quality Assessment for the Duwamish River and Elliott Bay* indicated that the level of pollution originating upstream of CSOs was high enough to dwarf improvements by CSO control projects.
- **Priority 4, CSOs at the West End of the Ship Canal.** Three projects to control CSOs at the west end of the Ship Canal (Ballard, 3rd Avenue West, and 11th Avenue West) are scheduled as the last projects to be completed because significant CSO control had already been accomplished in this area prior to the RWSP.

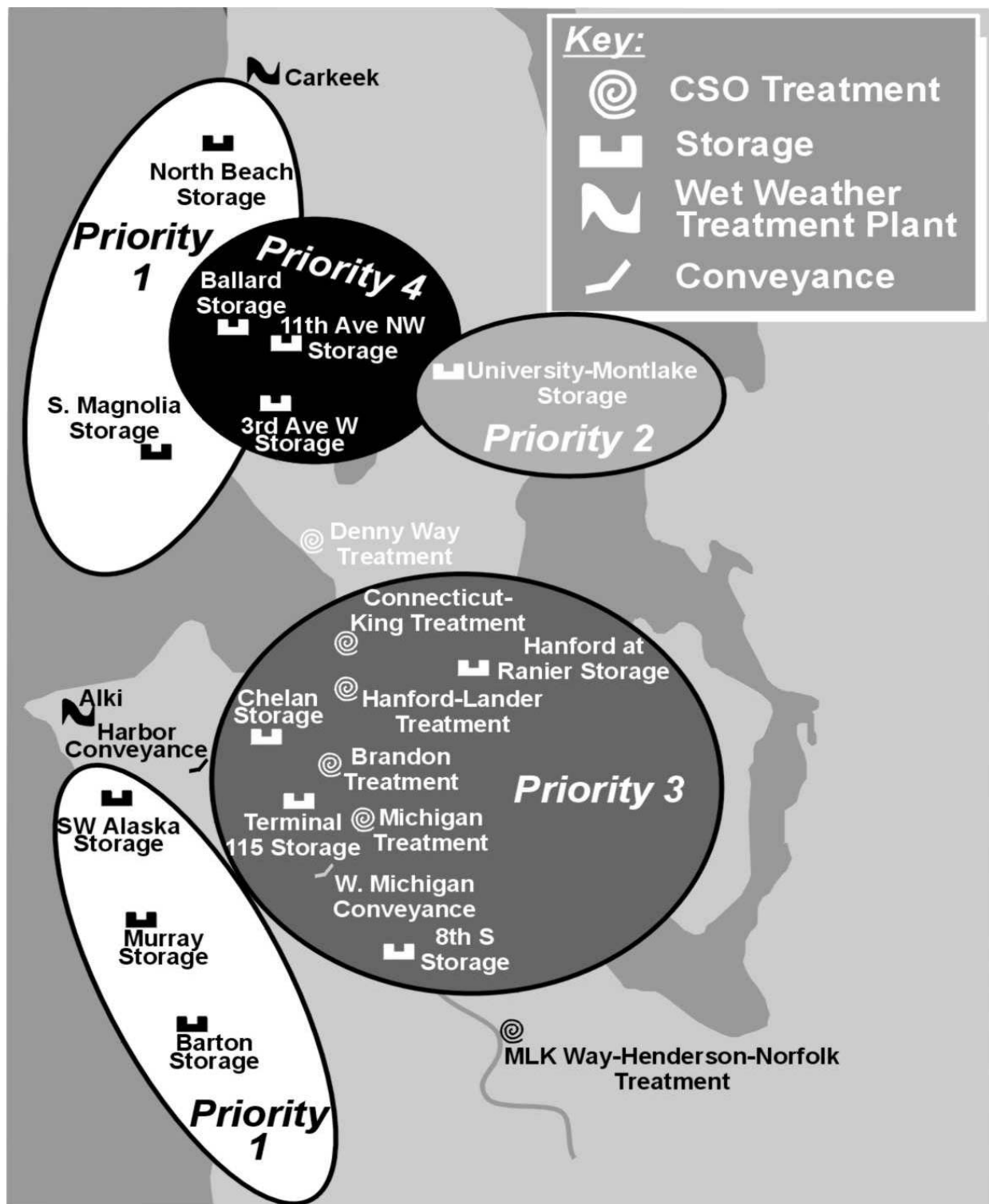


Figure 2-2. Priority of CSO Projects

Table 2-1. CSO Projects in Order of Priority in RWSP

Project Name	DSN ^a	Project Description	Projected Year of Control	Water Body
South Magnolia	006	1.3 MG storage tank	2012 ^c	Puget Sound
SW Alaska Street ^b	055	0.7 MG storage tank	Controlled	Puget Sound
Murray Avenue	056	0.8 MG storage	2012 ^c	Puget Sound
Barton Street	057	Pump station upgrade	2012 ^c	Puget Sound
North Beach	048	Storage tank and pump station expansion	2012 ^c	Puget Sound
University/Montlake	015/ 014	7.5 MG storage	2015	Lake Union/ East Ship Canal
Hanford #2	032	3.3 MG storage/treatment tank	2017	Duwamish River
West Point Treatment Plant Improvements		Primary/secondary enhancements	2018	Puget Sound
Lander Street	030	1.5 MG storage/treatment at Hanford	2019	Duwamish River
Michigan	039	2.2 MG storage/treatment tank	2022	Duwamish River
Brandon Street	041	0.8 MG storage/treatment tank	2022	Duwamish River
Chelan Avenue	036	4 MG storage tank	2024	Duwamish River
Connecticut Street	029	2.1 MG storage/treatment tank	2026	Elliott Bay
King Street	028	Conveyance to Connecticut Street treatment	2026	Elliott Bay
Hanford at Rainier Avenue	031	0.6 MG storage tank	2026	Duwamish River
8th Avenue S	040	1.0 MG storage tank	2027	Duwamish River
West Michigan	042	Conveyance upgrade	2027	Duwamish River
Terminal 115	038	0.5 MG storage tank	2027	Duwamish River
3rd Avenue W	008	5.5 MG storage tank	2029	West Ship Canal
Ballard	003	1.0 MG storage tank (40% King County)	2029	West Ship Canal
11th Avenue West	004	2.0 MG storage tank	2030	West Ship Canal

^a DSN refers to the Discharge Serial Number, an identifier set in the NPDES permit for an individual CSO location. See Figure 1-3 in Chapter 1 for locations of CSOs.

^b Updated monitoring and modeling data indicate that the SW Alaska Street CSO is already controlled; thus, the project is no longer needed.

^c In the RWSP, the Barton, Murray, North Beach, and South Magnolia projects were scheduled to be completed in 2010 or 2011. They are now scheduled to be completed in 2012.

2.3 Post-RWSP CSO Plan Updates and Program Reviews

Both Ecology's CSO regulation (WAC 173-245) and King County's RWSP policies require WTD to submit a CSO plan update to Ecology that coincides with each NPDES permit renewal for the West Point Treatment Plant. Updates are intended to describe WTD's progress on its CSO program to date, identify its program for the next 5 years, and provide a vehicle for making changes in the overall long-term CSO control program. WTD prepared such an update in 2000 (see below) when the West Point NPDES permit renewal was submitted to Ecology.

In addition to updates, the RWSP policies call for a CSO control program review to be done prior to the plan update that would occur as a part of the next NPDES permit renewal following the plan update and permit renewal in 2000. At the time the RWSP was prepared, the update and permit renewal were anticipated to be due in 2005. Ecology subsequently determined that the next NPDES permit renewal will be due in 2008. The CSO program review is now completed—well ahead of the 2008 Ecology-required update and permit renewal—providing the Council and the Regional Water Quality Committee (RWQC) time to comment on or make any needed recommendations to modify the CSO program.

2.3.1 2000 CSO Plan Update

The required update of the CSO control plan—*Year 2000 CSO Control Plan Update*—was included in the June 2000 submission of the West Point Treatment Plant NPDES permit renewal application to Ecology. The update reflected direction provided by the RWSP, adopted 6 months before.

The 2000 CSO plan update described King County's progress in implementing its CSO control program, documented its compliance with federal and state CSO control requirements, and identified two large CSO control projects—Denny Way/Lake Union and Henderson/Martin Luther King, Jr./Norfolk—for completion in the next 5-year NPDES permit cycle.¹

The update also identified concerns related to historically contaminated sediments near CSO discharge locations; identified some emerging technologies to be considered during predesign of future CSO control projects; and discussed new studies, initiatives, and regulations that affect CSO planning and control. It highlighted the potential impacts of new regulations that could be adopted to meet the requirements of the Endangered Species Act and to address contaminated sediment concerns.

¹ Both of these projects were completed in May 2005. The remainder of this report uses the names for the completed systems—Mercer/Elliott West and Henderson/Norfolk—rather than the project names. (See Chapter 3 for a description of these systems).

2.3.2 CSO Program Review

The CSO program review called for in the RWSP policies is described in Policy CSOCP-8, which states in part:

...the executive shall evaluate the benefits of CSO control projects along with other pollution control projects developed by King County and other agencies. This CSO program review will include, but not be limited to the following: maximizing use of existing CSO control facilities; identifying the public and environmental health benefits of continuing the CSO control program; ensuring projects are in compliance with new regulatory requirements and objectives such as the Endangered Species Act (ESA) and the Wastewater Habitat Conservation Plan; analyzing rate impacts; ensuring that the program review will honor and be consistent with long-standing existing commitments; assessing public opinion; and integrating the CSO control program with other water/sediment quality improvement programs for the region.

WTD completed the required review; Chapter 4 of this document and supporting appendices report the findings.

2.3.3 Future Updates and Program Reviews

If, in response to this CSO program review, the King County Council makes recommendations for changes to the CSO control program, those changes will be incorporated into the control plan update that will be submitted to Ecology with the NPDES permit renewal in 2008.

WTD intends to perform another program review in 2010. The review will consider several factors, including monitoring data, modeling data from an updated and recalibrated hydraulic model, scientific developments, results of pilot projects of treatment technologies, changes in regulations, results of cost-effectiveness efforts, and updated cost estimates. Conducting a program review in 2010 will also provide the RWQC and County Council sufficient time to review and make recommendations for the CSO plan update prior to submitting the West Point NPDES permit renewal application, anticipated to occur in 2013 if Ecology meets a 5-year permitting cycle.

While changes may be proposed in projects or in their order of construction, all projects are scheduled for completion by 2030. When the projects have been completed, King County will have controlled all of its CSOs to one untreated discharge per year on average as required by Ecology regulations.

2.4 Additional Planning and Environmental Review

King County evaluates and performs environmental review of all proposed programs and project alternatives. The current CSO program was presented and evaluated as part of a programmatic review in the *Regional Wastewater Services Plan Draft* and *Final Environmental Impact Statements*. As individual CSO projects are designed, project-specific environmental review of alternative designs for facilities and the impacts of constructing and operating those facilities occurs. The type of environmental review may range from a State Environmental Policy Act (SEPA) Determination of Non-Significance and Environmental Checklist to a National Environmental Policy Act (NEPA) Determination of Significance and Environmental Assessment and ESA Section 7 review.